

WHAT IS CLAIMED IS:

1. A monoclonal antibody comprising a monoclonal antibody having an ability to bind to an SCF receptor.
2. A monoclonal antibody according to claim 1 wherein said SCF receptor is a human SCF receptor.
3. A monoclonal antibody according to claim 2 wherein said monoclonal antibody is SR-1.
4. A monoclonal antibody according to claim 1 further comprising an ability to inhibit binding of a SCF molecule to said SCF receptor.
5. A monoclonal antibody according to claim 4 wherein said SCF molecule is a human SCF molecule.
6. A monoclonal antibody according to claim 5 wherein said SCF receptor is a human SCF receptor.

(a) exposing a mixture of cells to a monoclonal antibody according to claim 1;

8. A method of purifying hematopoietic cells  
10 according to claim 7 wherein said separating is by  
column chromatography.

10. A method of purifying hematopoietic cells according to claim 7 wherein said separating is by direct immune adherence.

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12. A method of gene therapy comprising retrovirally-mediated gene transfer into cells purified according to claim 7.

5 13. A method of separating normal cells from neoplastic leukemia cells comprising the steps of:

(a) exposing a mixture of cells comprising normal cells and neoplastic leukemia cells to a monoclonal antibody according to claim 1;

10 (b) separating normal cells from neoplastic leukemia cells based upon a differential in numbers of SCF receptors on normal cells and neoplastic leukemia cells.

15 14. A method of treating leukemia cells comprising administration of a therapeutically effective amount of a leukemia therapeutic agent conjugated to a monoclonal antibody according to claim 1.

20 15. A method of treating leukemia cells comprising administration of a therapeutically effective amount of a leukemia therapeutic agent conjugated to a binding fragment of a monoclonal antibody according to claim 1.

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